

UDOT RESEARCH & DEVELOPMENT REPORT ABSTRACT

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4. Title and Subtitle PAVEMENT AND SUBGRADE DISTRESS – REMEDIAL STRATEGIES FOR CONSTRUCTION AND MAINTENANCE (I-15 Mileposts 200-217)		5. Report Date October 2002			
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16. Abstract Sections of Interstate 15 within a 17 miles length of roadway from about mileposts 217 to 200 south of Nephi, Utah have been experiencing considerable distress since construction. Maintenance costs have been significant and it appears that distress may not simply be due to an inadequate pavement section. The problems associated with bumps, cracks and edge failures are likely associated with troubles in the subgrade soils along the alignment. Potential causes could include collapsible soil, expansive soil, compressible soil, poorly compacted fill and poor drainage. The objectives of this research study are to determine the causes for the problems and potential solutions prior to design and reconstruction of the area in question. Based on surficial geology and borehole data, zones were identified where collapsible soils were likely the culprit. Because the zone of collapsible soil extends to depths of up to 20 ft below the ground surface, deep dynamic compaction was recommended over excavation and replacement as a treatment method in these zones. Distress related to expansive soils exists throughout the study area, but significant damage concentrations are located in a cut section between mileposts 208 and 207 along I-15. This area is long enough to propose treatments for the area, in order to improve ride quality throughout the cut section. This study recommends a combination of methods as illustrated in Figure ES-3 to improve the odds of success. Because of the potential for differential settlement on the roadway, asphalt pavement should be used in reconstructing the roadway in the study area. A lack of adequate surface drainage is another critical factor leading to problems with both collapsible and expansive subgrade soils in this area.					
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